

II. *New Species of Hymenoptera in the British Museum.*
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[Read December 6th, 1916.]

Family BETHYLIDAE.

Genus DICROGENIUM, Stadelm.

Dicrogenium, Stadelm., Entom. Nachricht, xx. p. 201,
1894.

Nomineia, Kieff., Ann. Soc. Ent. France, lxxx, p. 453,
1911.

I consider that these are identical, and that Ashmead's action in transferring the genus from the *Bethylidae* to his *Cosilidae* was entirely unjustifiable.

Dicrogenium maximum, sp. n.

♂. Niger; mandibulis apice fusco-ferrugineis; alis fuscis, apice fusco-hyalinis.

Long. 18 mm.

♂. Mandibles strongly bidentate at the apex, the outer tooth the longest; clypeus short, transverse, with a strong median carina. Flagellum punctured, hairy, becoming slender towards the apex, scape smooth and shining, the antennae as long as the thorax and median segment combined. Head very large, broader than the thorax, broadly emarginate posteriorly, closely and coarsely punctured-reticulate; eyes very near to the base of the mandibles, separated from the posterior margin of the head by a distance exceeding their own breadth; the cheeks broader than the eyes, sparsely but deeply punctured, bearing a stout, acute, spine. Pronotum short, strongly narrowed anteriorly, the anterior margin raised, a deep groove along the posterior margin. Mesonotum coarsely punctured, more sparsely on the middle than on the sides, the parapsidal furrows shallow; scutellum very sparsely punctured; mesopleurae closely and coarsely punctured, with a shining, almost smooth, area behind the wings. Median segment irregularly rugulose, with two longitudinal carinae close together, the narrow space between the carinae transversely striated, the sides of the segment strongly horizontally striated, the apical slope more finely
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transversely striated. Abdomen shining, almost smooth; the seventh dorsal segment sparsely and shallowly punctured, broadly truncate at the apex; apical ventral segment closely punctured, hairy, deeply divided longitudinally in the middle. Radial cell open at the apex, but the radius is indicated by a brown continuation almost to the apex of the wing; cubitus indicated by a white scar beyond the first transverse cubital nervure, the latter indicated by a brown scar, the second transverse cubital by a white scar.

Hab. SIERRA LEONE, Tamadu (*J. J. Simpson*), June.

There is no tooth on the inner side of the mandibles as there is in *D. conradi*, Stadelm., and the carina of the prosternum is not furcate as in *D. rosmarus*, Stadelm.

Family MUTILLIDAE.

Ephutomorpha contigua, sp. n.

♀. Nigra; mandibulis basi, tuberculisque antennalibus fusco-ferrugineis; thorace rufo-ferrugineo; flagello subtus, tarsisque brunneo-ferrugineis; segmento dorsali primo apice late luteo; segmento dorsali secundo obscure acneo-virescente.

Long. 4 mm.

♀. Antennal tubercles well developed, rounded; second joint of the flagellum distinctly longer than the third. Eyes oval, with distinct facets, situated nearer to the posterior margin of the head than to the base of the mandibles. Head nearly as broad as the thorax, feebly rounded at the posterior angles, closely and not very finely punctured. Thorax closely punctured rugose on the anterior two-thirds, the apical third coarsely rugose, the sides of the apical slope feebly serrate; the thorax broadest anteriorly, the anterior angles feebly rounded, the anterior margin almost transverse, the length of the thorax greater by about one quarter than the greatest breadth, abruptly but not strongly narrowed behind the middle, a small tuft of erect white hairs on the mesopleurae. Second dorsal segment a little longer than the greatest breadth, the sides rather strongly convex, closely punctured rugulose; with an apical patch of white hairs, which is continued as a median band on the third, fourth and fifth segments. Pygidial area triangular, finely longitudinally striated.

Hab. S. QUEENSLAND, Brisbane (*Hacker*), December.

Nearest to *E. virulenta*, Turn., from S.W. Australia, but the thorax is less strongly narrowed posteriorly than in that species, the colour of the thorax is much brighter,

and the spots of pubescence on the dorsal segments are different, *virulenta* having an apical fascia of white pubescence instead of an apical spot.

Ephutomorpha lurida, sp. n.

♀. Pallide ferruginea; segmento dorsali secundo fascia mediana longitudinali nigra, segmentis quinto sextoque fuscis; segmento dorsali secundo macula magna utrinque fasciaque angusta apicali, tertioque macula mediana albopilosis; area pygidiali late triangulari, delicatissime punctata.

Long. 5-6 mm.

♀. Head and thorax sparsely clothed with pale fulvous pubescence; antennal tubercles fairly well developed, second joint of the flagellum very little longer than the third. Eyes round, strongly convex, much nearer to the posterior margin of the head than to the base of the mandibles. Head narrower than the thorax, strongly rounded at the posterior angles, finely and closely punctured. Thorax fully half as long again as the greatest breadth, strongly narrowed posteriorly, the apical margin scarcely more than half as wide as the basal; the anterior margin feebly arched, not quite transverse, rugose, more coarsely at the apex than at the base, the posterior slope coarsely rugose. Second dorsal segment finely longitudinally rugulose; fully half as long again as the greatest breadth, the sides very feebly convex. Sides of the abdomen thinly clothed with long fulvous hairs; pygidial area broadly triangular, very minutely punctured. Hind tibiae with one row of four spines.

Hab. N. QUEENSLAND, Townsville (*F. P. Dodd*), September.

This belongs to the group of *E. darwiniana*, André, and *E. excerpta*, Turn., but differs from both in colour; from the former in the more strongly narrowed apical portion of the thorax, the longer second abdominal segment and the sculpture of the pygidial area; from the latter in the more gradually narrowed thorax and in the less convex sides of the second abdominal segment.

Ephutomorpha diversipes, sp. n.

♀. Nigra; vertice late, fronte nigro intaminato, thoraceque ferrugineis; tuberculis antennalibus, flagello articulo primo, tarsisque pallide testaceis; segmento dorsali primo fascia apicali pallide lutea; calcaribus pallidis; segmentis dorsalibus 2-5 fascia mediana longitudinali continua albido pilosa.

Long. 5 mm.

♀. Antennal tubercles well developed, rounded; second joint of the flagellum distinctly longer than the third. Head a little narrower than the thorax, rounded at the posterior angles; finely and closely punctured on the vertex, more deeply but not so closely on the front. Eyes nearer to the posterior margin of the head than to the base of the mandibles, round and strongly convex. Thorax a little less than half as long again as the greatest breadth, broadly rounded on the anterior margin, slightly narrowed posteriorly, longitudinally rugose striate on the basal two-thirds, coarsely rugose on the apical third; the posterior slope almost vertical, coarsely rugose, with two minute lateral teeth close to the basal angles. Second dorsal segment finely longitudinally rugose, about one-third longer than the greatest breadth, the sides moderately convex. Pygidial area very narrowly rounded at the apex, finely longitudinally striate on the basal half. Hind tibiae with two rows of four rather feeble spines.

Hab. N. QUEENSLAND, Townsville (*F. P. Dodd*), November and June.

Near *E. vittigera*, André, a variety of which occurs in October in the same locality. It differs in the sculpture of the thorax, which does not run into striae in *vittigera*, in the absence of fulvous hairs on the thorax, in the ferruginous colour of the head and thorax, in the feebler spines of the hind tibiae, and in the colour of the tarsi; it is also a smaller species.

Ephutomorpha unilineata, sp. n.

♀. Nigra; capite fusco-ferrugineo, fronte et vertice nigro-in-taminatis; scapo fusco; flagello infra pallide testaceo; thorace rufo-ferrugineo, brevi, latitudine vix longiore; segmento dorsali primo fascia apicali pallide lutea; segmentis dorsalibus 2-5 fascia mediana longitudinali continua albopilosa; area pygidiali late triangulari, longitudinaliter striata; calcaribus pallidis.

Long. 5 mm.

♀. Antennal tubercles rather large, with a low transverse carina between them; second joint of the flagellum short, no longer than the third. Eyes round, strongly convex, situated nearer to the hind margin of the head than to the base of the mandibles. Head narrower than the thorax, broadly rounded posteriorly; the front rugose, the vertex closely punctured. Thorax closely punctured rugose, scarcely longer than the greatest breadth, slightly narrowed from the middle both anteriorly and posteriorly, the anterior margin straight, the posterior slope almost vertical, shallowly rugose,

pleurae almost smooth. First dorsal segment short, slightly depressed below the second, which is nearly half as long again as its greatest breadth, finely and closely punctured, the sides somewhat convex. The sides of the abdomen sparsely clothed with long white hairs, interspersed with black near the apex. Hind tibiae with two rows of four spines.

Hab. S. QUEENSLAND, Brisbane (*Hacker*), November.

Allied to *E. argenteolineata*, André, but may be distinguished by the colour of the legs, the distinctly stronger sculpture of the head and thorax, the slightly different shape of the latter, and the distinctly longer second abdominal segment.

Ephutomorpha setigera, sp. n.

♀. Nigra; tuberculis antennalibus pallide testaceis; segmento dorsali primo margine apicali pallide luteo; segmento dorsali secundo in medio longitudinaliter late, tertio, quarto, quintoque in medio, sextoque basi brunneo-ferrugineis; tarsis fusco-ferrugineis.

Long. 6 mm.

♀. Clypeus small and flat, truncate at the apex; antennal tubercles rather large, second joint of the flagellum a little longer than the third, less than twice as long as the first; a low carina from the antennal tubercles not reaching the eyes. Head closely and rather strongly punctured, more sparsely on the front than on the vertex, sparsely clothed with close lying fulvous bristles, interspersed with which are a few long black hairs. Eyes round, strongly convex, situated nearer to the hind margin of the head than to the base of the mandibles; the head rounded at the posterior angles, no wider than the thorax. Thorax granulate-rugose, more coarsely posteriorly than anteriorly, nearly half as long again as broad, the sides almost smooth, the posterior slope finely rugulose, the sides almost parallel, the anterior angles rounded, the dorsal surface clothed with short setae as the head, but with rather more numerous long black hairs. Dorsal segments 1-5 with a small patch of sparse white hairs in the middle of the apical margin; second segment half as long again as the greatest breadth, the sides convex, closely but not very coarsely punctured, the punctures confluent longitudinally. Pygidial area triangular, finely longitudinally striated, the striae not reaching the apex. Base of the abdomen with long whitish hairs, the hairs on the sides of the abdomen whitish near the base, mostly black near the apex. Hind tibiae with two rows of four spines.

Hab. S. QUEENSLAND, Brisbane (*Hacker*), November.

Family THYNNIDAE.

Zaspilothynnus striatifrons, sp. n.

♂. Niger; mandibulis, apice excepto, clypeo macula subapicali fusca utrinque, orbitis, macula arcuata inter antennas, pronoto margine antico, propleuris, pronoto margine postico, tegulis, mesonoto macula magna quadrata postice, mesopleuris antice et macula magna postice, scutello fascia latissima, postice ad apicem producta, scutelli angulis anticis, postscutello, segmento mediano fascia lata longitudinali lateribusque, segmentis dorsalibus 1-6, ventralibus 2-5 fascia transversa anguste interrupta, segmento primo ventrali macula mediana, coxisque subtus flavis; segmento dorsali sexto apice, septimoque, ventralibus sexto septimoque pedibusque ferrugineis; alis subhyalinis, venis ferrugineis.

♀. Nigra; capite ferrugineo, pedibus brunneo-ferrugineis, femoribus nigro-maculatis; sterno, segmentisque ventralibus secundo tertioque brunneis; prothorace postice nigro-marginato, scutello, postscutello, segmento mediano lateribus, segmentis dorsalibus 1-3 fascia transversa undulata, segmentoquoque dorsali quarto fascia transversa interrupta flavis; pygidio fusco.

Long. ♂, 15 mm; ♀, 13 mm.

♂. Clypeus pointed and prominent at the base and connected by a short carina with the interantennal prominence, very broadly truncate at the apex, the apical angles not prominent, strongly longitudinally striated. Interantennal prominence very broadly triangular, a low longitudinal carina from the apex reaching more than half-way to the anterior ocellus. Front rugosely punctured, irregularly rugose striate above the base of the antennae; vertex more sparsely punctured. Antennae about as long as the thorax and median segment combined; pronotum rather sparsely and finely punctured, with a shallow shining groove behind the slightly raised anterior margin; mesonotum very closely punctured between the deep parapsidal furrows, but much more sparsely in the middle. Scutellum very broadly rounded at the apex, subtruncate, rather closely punctured; median segment oblique from the postscutellum, finely rugulose, the middle rather sparsely punctured. Abdomen somewhat elongate, the basal dorsal segment oblique anteriorly, as broad at the apex as the second segment, all the segments rather sparsely punctured and not constricted; sixth ventral segment with a spine on each side at the apical angles; seventh dorsal segment produced into a broad flattened lamella, longitudinally striated and very broadly rounded at the apex. Hypopygium obliquely striated above, subtriangular, broad at the base with a

distinct spine on each side at the basal angles, narrowly rounded at the apex. Maxillae with a few long hairs at the base beneath. Wings sparsely clothed with very short hairs, third abscissa of the radius much longer than the second, first recurrent nervure received a little beyond two-thirds from the base of the second cubital cell, second a little before one-third from the base of the second cubital cell.

♀. Mandibles acute at the apex; clypeus punctured, without a carina, truncate at the apex. Front with a large concave area on each side touching the inner margin of the eye and extending nearly to the vertex, smooth and shining; the ridge between the depressions not quite as wide as one of them, smooth and shining, with a median longitudinal sulcus and with a few punctures on the sides; vertex shining, with a few scattered punctures. Head nearly twice as broad as long, rounded at the posterior angles. Pronotum broader than the head, the anterior margin straight, slightly narrowed posteriorly, the hind margin broadly arched, twice as broad anteriorly as long, shallowly punctured, with a few large setigerous punctures on the anterior margin. Scutellum smooth and shining, broadly truncate at the apex; postscutellum plainly visible, transverse. Median segment very short, the dorsal surface scarcely half as long as the scutellum, widened from the base, almost vertically truncate posteriorly, the dorsal surface smooth and shining, the face of the truncation microscopically punctured. Dorsal surface of the abdomen shining, with a few scattered punctures; first segment almost vertically truncate anteriorly, with a deep groove close to the apical margin and a few indistinct, short, transverse striae close to the apical angles; second segment with numerous transverse striae, which gradually increase in height from the base to the apex, the basal striae strongly curved, those at the apex straight. Ventral segments coarsely, but not very closely, punctured; the fifth segment coarsely longitudinally striated. Pygidium narrow, transversely striated at the base, vertically truncate posteriorly, strongly compressed before the truncation, the dorsal plate of the truncation narrowly rounded at the base, broadly rounded at the apex, with about ten arched striae, longer than the greatest breadth, scarcely reaching beyond the middle of the truncation; the ventral plate rather broadly truncate at the apex, finely, but distinctly serrate at the sides. Basal joint of intermediate tarsi rather broad, with six stout spines on the outer margin.

Hab. QUEENSLAND, Stradbroke Island, Moreton Bay (*H. Hacker*), September 17, 1915.

This is intermediate between *Thynnus* and *Zaspilo-*

thynnus, and perhaps might be placed in the former genus. The nearest ally seems to be *Thynnus brisbanensis*, Turn., but it is also very near *Zaspilothynnus rufoluteus*, Turn. It differs from *brisbanensis* in the form of the hypopygium, in the more oblique median segment, and in the less truncate first dorsal segment, also in the colour of the legs and apical abdominal segments. The distinct postscutellum of the female is remarkable.

Family SCOLIIDAE.

Subfamily ELIDINAE.

Elis (Mesa) *nursei*, Turn.

Plesia nursei, Turn., Ann. and Mag. Nat. Hist. (8). iii, p. 480, 1909, ♂.

Elis (Mesa) *nursei*, Turn., Proc. Zool. Soc. London, p. 721, 1912, ♂.

♀. Nigra, capite thoraceque crasse, abdomine sparse punctatis, pygidio longitudinaliter rugose striato, alis hyalinis, venis pallide testaceis; tegulis testaceis, calcaribus albidis.

Long. 13 mm.

♀. Clypeus with a low carina, strongly punctured, the apical margin smooth and transverse. Head coarsely punctured, the punctures on the front more or less confluent; scape smooth and shining above, with a few strong piliferous punctures beneath; pronotum coarsely punctured, mesonotum and scutellum rather more sparsely punctured, the parapsidal furrows very distinct. Median segment more finely punctured, not margined posteriorly, the posterior slope rugulose, two convergent longitudinal carinae from the base close to the middle of the median segment. Abdomen rather sparsely and shallowly punctured, the punctures rather large; sixth dorsal segment longitudinally rugose-striate, narrowly rounded at the apex. Basal joint of the hind tarsi with a row of close set hairs beneath. Second abscissa of the radius very little shorter than the third, first recurrent nervure received just before the middle of the second cubital cell, second just before three-quarters from the base of the third cubital cell.

Hab. SIMLA (*Nurse*), September.

This is nearest to *E. ustulata*, Turn., but the sculpture is much coarser and the sixth dorsal segment much more narrowly rounded than in that species. *E. nursei* ♀ was

identified by Cameron for Colonel Nurse as *anthracina*, Sm.; but, as I have pointed out in other papers, that insect is an *Anthobosea* and is Australian; not Indian, as stated by Smith and Bingham.

Elis (Mesa) heterochroa, sp. n.

♀. Fusco-ferruginea; mandibulis apice, flagello, pleuris, sterno, coxis posticis subtus, segmento mediano, segmento ventrali primo, segmentisque dorsalibus 1-4 margine apicali late nigris; calcaribus albidis; alis pallide flavo-hyalinis, venis fuscis; segmento dorsali sexto longitudinaliter striato, apice truncato.

♂. Niger; clypeo apice, mandibulis apice excepto, macula transversa utrinque inter antennas, pronoto macula transversa mediana, tegulis basi, segmentis dorsalibus 1-6 fascia angusta apicali lateribus dilatata, in medio anguste interrupta, segmentis ventralibus 2-5 macula parva apicali utrinque, coxis subtus, femoribus anticis posticisque subtus et apice, intermediis apice, tibiis anticis intermediisque supra, posticis basi, tarsisque hic illic infuscatis, flavis; alis hyalinis, stigmatate venisque nigris.

Long. ♀, 18 mm; ♂, 17 mm.

♀. Clypeus sparsely but rather strongly punctured, with a low median carina which does not reach the broadly truncated apex. Head coarsely and closely punctured, more sparsely on the vertex than on the front, antennal tubercles well defined. Scape smooth above, beneath punctured, with long pale fulvous setae towards the apex. Pronotum coarsely and closely punctured, subcarinate longitudinally in the middle; scutellum and mesonotum rather more sparsely punctured; pleurae more finely and shallowly punctured. Median segment subopaque, with a longitudinal impressed line on the dorsal surface, the puncturation shallow and obscure, finer at the base than at the apex, the posterior slope shallowly punctured-rugulose, the sides of the segment very finely and closely striated and clothed with short white pubescence. Abdomen shining, sparsely punctured, more closely on the fourth and fifth than on the basal segments, ventral segments more coarsely punctured than the dorsal. Sixth dorsal segment closely longitudinally striated, the apical margin broadly smooth and rather broadly truncate at the apex. Second abscissa of the radius as long as the third, first recurrent nervure received close to the middle of the second cubital cell, second just before two-thirds from the base of the third cubital cell. Basal joint of the hind tarsi with a close row of hairs beneath mingled with a few spines.

♂. Clypeus finely punctured, clothed with white pubescence,

slightly convex, subcarinate longitudinally at the base. Inter-antennal prominence bilobed; the front rugose, the vertex punctured. Head much broader than the thorax; rounded at the posterior angles; the posterior ocelli further from the eyes than from each other; antennae about as long as the head, thorax and median segment combined. Thorax punctured, more finely and sparsely on the scutellum than elsewhere, mesopleurae finely rugose; pronotum shorter than the mesonotum, the anterior margin straight, the angles not prominent. Median segment closely and strongly punctured. First abdominal segment long; the petiole occupying rather more than the basal third of the segment, rather shorter than the basal joint of the hind tarsi; the apical portion moderately swollen, the extreme apex a little constricted; second segment scarcely more than half as long as the first, broadened from the base, longer than the apical breadth; third segment a little broader than long; basal segment smooth and shining, the remaining segments gradually becoming more strongly punctured; the punctures on the sixth dorsal segment large but rather sparse; seventh segment smooth at the base, with a few large punctures before the apex, the apical emargination narrow, a little deeper than its apical breadth. Second abscissa of the radius about equal to the third.

Hab. NYASALAND, Mlanje (*S. A. Neave*), December to June.

The female is very near *E. heterogamia*, Sauss., which occurs in the same district, and may prove to be only a variety of that species, but the difference in the colour of the legs and abdomen seems to be constant. The nine females in the collection were taken from January to June, seven of them in February, specimens of *heterogamia* being taken from December to June. The male has the first abdominal segment distinctly more elongate than in *clavata*, Sauss., and the colour of the nervures is different. In some specimens of the male the clypeus is wholly black, and in some the yellow mark on the pronotum shows a tendency to disappear.

Elis (Mesa) erythropoda, Turn.

Plesia (Mesa) erythropoda, Turn., Ann. and Mag. Nat. Hist. (8), i, p. 505, 1908, ♀.

The type was from Lake Ngami. Mr. Neave has sent a series of the female from Mlanje, taken from January to May. In these specimens the head is more sparsely punctured than in the type.

Elis (Mesa) arnoldi, sp. n.

♀. Nigra; mandibulis dimidio apicali fusco-ferrugineis; flagello subtus fusco; pronoto propleurisque rufis; calcaribus albidis; unguiculis pallide testaceis; alis hyalinis, venis fuscis.

Long. 9 mm.

♀. Clypeus subcarinate longitudinally in the middle, the apical margin transverse and slightly depressed. Front closely and strongly, vertex and pronotum less closely punctured; mesonotum and scutellum sparsely punctured. Propleurae sparsely, mesopleurae very closely and strongly punctured; median segment more finely and very closely punctured, with the usual shallow, margined, longitudinal groove from the base, the sides of the segment finely and closely striated. Abdomen rather closely and shallowly punctured on the dorsal surface; the ventral surface more finely and closely punctured at the base of the segments, the groove between the two basal ventral segments very deep as in other species of the genus. Sixth dorsal segment closely punctured at the base, the punctures towards the apex intermingled with fine longitudinal striae, the apical margin broadly smooth and pale testaceous, broadly rounded at the apex. Third abscissa of the radius twice as long as the second, recurrent nervures received distinctly beyond the middle of the second and third cubital cells. Basal joint of the hind tarsi with a scopa of fine whitish hairs beneath.

Hab. S. RHODESIA, Buluwayo (*G. Arnold*), March.

In colour this species somewhat resembles *Anthobosca erythronota*, Cam., but is generically distinct. The sculpture of the sixth dorsal segment separates it from all other African species of *Elis*, the segment being nearly always striated; in *E. peringueyi*, Sauss., in which it is punctured, the punctures are very coarse and sparse.

Pterombrus williamsi, sp. n.

♂. Niger; mandibulis ferrugineis; abdomine segmentis tertio quartoque apice lateribusque, quinto, sexto septimoque omnino rufo-ferrugineis; alis hyalinis, venis nigris.

Long. 7 mm.

♂. Head shining, sparsely and rather finely punctured; antennal tubercles well defined, forming short longitudinal carinae. Mandibles bidentate at the apex; labrum transverse, with an apical fringe of hairs. Pronotum distinctly longer than the mesonotum, the anterior margin distinctly raised, rather sparsely punctured; mesonotum rather more strongly punctured; scutellum as long as

the mesonotum; median segment very coarsely rugose, the sides finely and closely striated. Abdomen smooth and shining, petiolate; the first segment as long as the second and third combined, very narrow at the base, the apical half moderately swollen and slightly constricted at the apex; the second segment twice as broad at the apex as at the base; the recurved apical spine of the hypopygium rather short. First recurrent nervure received just before one-quarter from the base of the second cubital cell, second just before one-third from the base of the third cubital cell. Third abscissa of the radius as long as the second and first combined, second fully twice as long as the first.

Hab. BRITISH GUIANA, Bartica (*C. B. Williams*), September.

This is distinguished from other known males of the genus by the black basal and red apical segments of the abdomen; the anterior margin of the pronotum is raised, which is not the case in *glabricollis*, Dücke, or *confusus*, Sm.

Family PSAMMOCHARIDAE.

The two following species belong to the wide-ranging genus *Episyron*, in which the tarsal ungues are bifid in both sexes, the cubitus of the hindwing originating just before the transverse median nervure, the third cubital cell much shorter than the second and strongly narrowed on the radius, the first dorsal segment clothed more or less densely with scale-like hairs, and the male antennae rather slender, with the joints not arcuate beneath. The labrum is slightly exposed.

1. *Episyron lepidohirtus*, Turn.

Anoplius (Episyron) lepidohirtus, Turn., Proc. Zool. Soc. London, p. 331, 1910, ♀ ♂.

This is a true *Episyron*, nearly related to the European *P. rufipes*, the type of the genus. It is very closely related to the New Guinea species *E. papuensis*, Sm.

Hab. N. QUEENSLAND, Mackay to Cooktown.

2. *Episyron kurandensis*, Turn.

Anoplius (Episyron) kurandensis, Turn., Proc. Zool. Soc. London, p. 333, 1910, ♀.

The scale-like hairs on the first dorsal segment are not very strongly developed in this species.

Hab. N. QUEENSLAND, Kuranda.

Genus PSAMMOCHARES, Latr.

The Australian species still included in this genus fall into several sections, which will doubtless eventually be raised to generic rank; but I consider it best to wait until a more comprehensive revision is possible, in the meantime defining certain groups of related species. One of these groups, somewhat allied to *Batozonus*, Ashm., and *Episyron*, Schiodte, has the tarsal ungues of both sexes bifid as in the latter genus, but has the joints of the flagellum in the male strongly arcuate beneath as in *Batozonus*, though shorter than in that genus, and differs from both in having the cubitus of the hindwing interstitial with the transverse median nervure. The median segment of the female is truncate at the apex and more or less emarginate, with a distinct median sulcus on the dorsal surface; and the third cubital cell is much narrowed on the radius. The sexual dimorphism in the group is great, much greater than in *Episyron*, though less than in *Batozonus*. The species included are—

1. *Psammochares consimilis*, Sm.

Pompilus consimilis, Sm., *Descr. new species Hymen.*, p. 152, 1879, ♀.

♀. Nigra; fronte, vertice, pronotoque pilis brevissimis aurantiacis, subsquamosis, stratis, dense obtectis; postscutello macula utrinque segmentoque mediano angulis posticis albo-pilosis; segmentis dorsalibus 2-3 fascia transversa grisea utrinque; alis fuscis, apice obscurioribus, venis fuscis.

♂. Niger; antennis fusco-ferrugineis, scapo supra infuscato, segmento dorsali sexto albido; segmento mediano angulis posticis albo-pilosis; fronte, pronoto, segmentis dorsalibus 1-3 fascia lata basali, quarto quintoque omnino griseo-pubescentibus; alis fusco-hyalinis, apice obscurioribus.

Long. ♀, 14 mm; ♂, 12 mm.

♀. Clypeus widely but very shallowly emarginate at the apex, the labrum exposed. Head somewhat flattened, the posterior ocelli nearly twice as far from each other as from the hind margin of the head. Second joint of the flagellum less than half as long again as

the third. Pronotum arched posteriorly, not angulate, almost as long as the mesonotum; scutellum depressed at the sides. Median segment longer than the mesonotum, with a distinct median sulcus, rather strongly emarginate at the apex, the apical slope almost vertical. Second ventral segment convex, pygidium smooth. Basal joint of the fore tarsi with four short spines, all the unguis bifid. Third cubital cell pointed on the radius, subpetiolate.

♂. Clypeus broadly and shallowly emarginate, the labrum exposed. Head flattened, the front subearinate longitudinally from the anterior ocellus but grooved on the lower part towards the base of the antennae, the posterior ocelli very near the hind margin of the head; antennae stout, tapering towards the apex, very little longer than the thorax and median segment combined, fifth to eleventh joints of the flagellum strongly arcuate beneath. Hind margin of the pronotum with a distinct angle in the middle. Median segment without a distinct sulcus, the apical slope less abrupt than in the female and less deeply emarginate. First abdominal segment long, second ventral segment convex, with a distinct, though shallow, transverse impressed line near the base. Third cubital cell not quite pointed on the radius, but the third abscissa of the radius is extremely short. All the tarsal unguis bifid. The distance between the base of the mandibles and the eyes is considerable.

Hab. QUEENSLAND, Mackay (Turner), March; Brisbane, (Hacker). January and February.

The male has not been previously described; the description is taken from two Mackay specimens; the specimen from Brisbane is without the transverse groove near the base of the second ventral segment, but does not differ otherwise. The female shows no trace of such a groove, the presence of which in males is most remarkable. The female has a strong superficial resemblance to *Psammochares frontalis*, Fabr., which belongs to another section of the genus and has the tarsal unguis unidentate, not bifid.

2. *Psammochares doddi*, Turn.

Anoplius doddi, Turn., Proc. Zool. Soc. London, p. 328, 1910, ♀.

♂. Niger; flagello articulis secundo tertioque subtus fulvis; clypeo macula magna utrinque, pronoto margine posteriore, segmento dorsali tertio fascia basali interrupta, segmento dorsali septimo, calcariis, tibiisque posticis supra albido flavis; alis hyalinis, fascia apicali fusea, extremo apice hyalinis. Var. segmento mediano

angulis apicalibus, segmento secundo dorsali macula basali utrinque flavis.

Long. 8-9 mm.

♂. Clypeus truncate at the apex, the labrum exposed. Fourth to eleventh joints of the flagellum strongly arcuate beneath; eyes only narrowly separated from the base of the mandibles. Head somewhat flattened, the posterior ocelli very near the hind margin of the head. Hind margin of the pronotum strongly arched, not angulate. Median segment with a distinct longitudinal sulcus, shorter than the mesonotum, steeply sloped posteriorly, but not abruptly truncate, with patches of white pubescence at the apical angles. First dorsal segment rather densely clothed with scale-like hairs, as in the genus *Episyron*, fourth, fifth and sixth segments covered with grey pubescence; second ventral segment convex, seventh with a longitudinal carina. Third abscissa of the radius about half as long as the second.

Hab. QUEENSLAND, Townsville (*Dodd*); Mackay (*Turner*), January to March; Brisbane and Stradbroke Island (*Hacker*), October to February; NORTHERN TERRITORY, Alexandria (*Stalker*), January; Hermannsburg (*Hillier*), April.

The female is easily distinguished by the fasciate forewings.

The following species are very closely allied to *Episyron*, but differ in having the third cubital cell much larger than the second and the cubitus of the hindwing in most specimens interstitial with the transverse median nervure. The forewings are crossed by two fuscous fasciae. They form a generic group.

1. *Psammochares limpidus*, Turn.

Anoplus (Episyron) limpidus, Turn., Proc. Zool. Soc. London, p. 332, 1910, ♀ ♂.

This is not a true *Episyron*, and pending a revision, must be retained in *Psammochares*.

Hab. N. QUEENSLAND, Kuranda.

2. *Psammochares muii*, sp. n.

♀. Nigra; mandibulis basi, clypeo dimidio apicali, scapo, pronoto margine postico, pedibusque anticis brunneo-ferrugineis; flagello subtus, tegulisque fusco-ferrugineis; alis hyalinis, anticis fusco bifasciatis.

Long. 8 mm.

♀. Clypeus transverse at the apex, clothed with delicate white

pubescence, microscopically punctured, with a very sparse transverse row of large punctures near the middle, from each of which springs a long black hair. Eyes distinctly divergent towards the clypeus; the posterior ocelli as far from each other as from the eyes; a distinct frontal sulcus reaching the anterior ocellus. Antennae slender, the second joint of the flagellum as long as the first and third combined. Pronotum strongly arched posteriorly, not angulate in the middle; scutellum rather strongly compressed laterally, the dorsal surface small. Dorsal surface of the median segment shorter than the scutellum, much broader than long, without a median sulcus; the posterior slope oblique and clothed with short whitish pubescence. Abdomen opaque, the basal dorsal segment clothed with greyish scale-like hairs; sixth dorsal segment finely punctured and sparsely clothed with long fuscous hairs, elongate triangular; second ventral segment strongly convex. Third abscissa of the radius longer than the second, as long as the second transverse cubital nervure, the cubital margin of the third cubital cell half as long again as that of the second; first recurrent nervure received at two-thirds from the base of the second cubital cell, second just beyond the middle of the third cubital cell. Cubitus of the hindwing interstitial. Fore tarsi very feebly spined, the basal joint with three short spines; hind tibiae feebly spinose. The basal fascia of the forewing is not very broad and is situated on the outer side of the basal nervure, not reaching the costa; the second fascia very broad, crossing the wing, and occupying the whole of the radial and second and third cubital cells.

Hab. AMBOINA (*F. Muir*), October.

Easily distinguished from *limpidus* by the colour of the antennae and legs, but very close in structure.

Another group has the tarsal ungues unidentate in both sexes; the joints of the flagellum in the male not arcuate beneath; the second cubital cell always longer than the third on the radius, though not always on the cubitus; the median segment with a sulcus, usually strongly developed from base to apex; and the fore tarsi of the female in most species strongly spinose. The species are all black, with white or grey pubescence, rarely with orange close-lying hairs on the pronotum. To this section belong—

1. *Psammochares senex*, Turn.

Anoplus senex, Turn., Proc. Zool. Soc. London, p. 327.
1910, ♀.

Hab. VICTORIA.

2. *Psammochares atavus*, Turn.

Anoplius atavus, Turn., Proc. Zool. Soc. London, p. 326,
1910, ♀.

Hab. N.W. AUSTRALIA.

3. *Psammochares ahrimanes*, Turn.

Anoplius ahrimanes, Turn., Proc. Zool. Soc. London, p. 326,
1910, ♀.

Hab. N. QUEENSLAND.

4. *Psammochares pluto*, sp. n.

♀. Nigra; alis nigro-violaceis; flagello subtus fusco; unguiculis unidentatis.

♂. Feminae similimus; scapo subtus bruneo, orbitis internis anguste flavis; unguiculis unidentatis.

Long. ♀, 17 mm.; ♂, 14 mm.

♀. Clypeus broadly truncate at the apex, the labrum not exposed; second joint of the flagellum as long as the first and third combined, the third distinctly longer than the fourth. Eyes slightly divergent towards the clypeus, separated on the vertex by a distance equal to the length of the third joint of the flagellum. Pronotum shorter than the mesonotum, the posterior margin broadly arched, without a distinct angle; scutellum narrowly truncate at the apex. Median segment broader than long, without tubercles, rounded at the posterior angles, gradually sloped posteriorly, with a deep median sulcus from the base. Abdomen opaque, with a few long black hairs on the sides near the apex; sixth dorsal segment rather broadly rounded at the apex and sparsely clothed with long black setae. Basal joint of fore tarsus with three moderately long spines on the outer margin, hind tibiae spinose, tarsal ungues with one tooth. Third abscissa of the radius a little longer than the first, and more than two-thirds of the length of the second, submedian cell equal in length to the median, second recurrent nervure received beyond the middle of the third cubital cell, cubitus of the hind-wing interstitial with the transverse median nervure.

♂. Antennae not stout, the joints very slightly arcuate beneath, second joint of the flagellum scarcely longer than the third. Clypeus widely emarginate at the apex, the labrum exposed in the arch of the emargination. Median segment as long as broad, without a

sulcus. Tarsal unguis unidentate, hind tibiae moderately spinose; venuration of wings as in the female.

Hab. MACKAY, Q. (*Turner*), 1 ♀, November 1897; 1 ♂, February 1899.

5. *Psammochares frontalis*, Fabr.

Sphex frontalis, Fabr., *Syst. Entom.*, p. 349. 1775, ♀.
Pompilus frontalis, Fabr., *Syst. Piez.*, p. 188, 1804, ♀.

The male is similar to the female, but has the pubescence on the head and pronotum greyish instead of orange. The seventh dorsal segment is broadly truncate at the apex, the seventh ventral segment ecarinate longitudinally and produced into a short spine at the apex.

Hab. QUEENSLAND, Brisbane and Mackay.

6. *Psammochares semiluctuosus*, Sm.

Pompilus semiluctuosus, Sm., *Cat. Hym. B. M.*, iii, p. 166, 1855, ♀.

This is a large species, with six long, slightly spatulate, spines on the basal joint of the fore tarsi.

Hab. SYDNEY.

7. *Psammochares berthoudi*, sp. n.

♀. Nigra, fronte, elypco lateribus, pronoto marginibus, mesonoto fascia transversa apicali, scutello angulis basalibus, postscutello macula magna mediana, maculaque minore utrinque angulis apicalibus, mesopleuris fascia obliqua, segmento mediano angulis basalibus et apicalibus, segmento dorsali primo macula utrinque, segmentis dorsalibus 1-5 macula transversa apicali utrinque, segmentisque ventralibus secundo tertioque macula utrinque angulis apicalibus albido-pubescentibus; alis fuscis, apice obscurioribus, venis nigris; metatarso antico spinis septem longis instructo.

Long. 23 mm.

♀. Clypeus broadly truncate at the apex; second joint of the flagellum very long, nearly as long as the third and fourth combined; front flat, without a distinct sulcus, posterior ocelli much nearer to each other than to the eyes. Pronotum strongly arched posteriorly, not angulate; scutellum with a broad dorsal surface, not very strongly compressed laterally. Median segment scarcely longer than the pronotum, much broader than long, the sulcus on the dorsal surface very deep, the lateral tubercles not developed.

Sixth dorsal segment broadly rounded at the apex, with sparse punctures, each of which bears a long black hair. Basal joint of the fore tarsi with seven long slightly spatulate spines; intermediate and hind tibiae with a patch of grey pubescence at base and apex, fore tibiae with a line of grey pubescence on the outer side. Tarsal ungues unidentate. Second abscissa of the radius more than half as long again as the third, the second cubital cell as long on the cubitus as the third; first recurrent nervure received at about one-sixth from the apex of the second cubital cell, second close to the middle of the third cubital cell. Cubitus of hindwing interstitial.

Hab. S.W. AUSTRALIA, Waroona (*G. F. Berthoud*), January.

This is a western form of *semiluctuosus*, differing little from that species except in the presence of an additional spine on the basal joint of the fore tarsi, and in the much more broadly interrupted abdominal fasciae.

8. *Psammochares melancholicus*, Sm.

Pompilus melancholicus, Sm., Trans. Ent. Soc. London, p. 244, 1868, ♀ ♂.

This species closely resembles *semiluctuosus* in colour, but is much smaller, the joints of the flagellum are less elongate, the abdominal fasciae continuous, the sixth dorsal segment much more narrowly rounded at the apex, the basal joint of the fore tarsi with only three spines, and the median segment with an oblique band of cinereous pubescence on each side near the apex. The male has the apical ventral segment with a low longitudinal carina, the hairs on the segment and the apical fringe short; the sixth ventral segment almost flat, not strongly convex.

Hab. S.W. AUSTRALIA, Yallingup (*Turner*), October to December; Champion Bay (*Du Boulay*).

Smith's type is unfortunately lost, but his description of the species as only 5 lines long agrees with the present species much better than with the larger allied species occurring in the same locality. My specimens measure ♀, 13 mm.; ♂, 7 mm.

9. *Psammochares vassel*, sp. n.

♀. Differs from *melancholicus* in the larger size, the female measuring 18 mm., in the much broader apex of the sixth dorsal

segment, in the more convex base of the second ventral segment, and in the presence of a fourth spine on the basal joint of the fore tarsus.

♂. Differs from *melancholicus* in the larger size, 11 mm.; in the strongly compressed sides of the apical ventral segment, which leave the median carina very prominent, the segment is also covered with long hairs, which are especially conspicuous along the carina and on the apical fringe; the sixth ventral segment is more convex than in *melancholicus*, and the fasciae of cinereous pubescence which in *melancholicus* are confined to the three basal segments extend in *vassei* to the sixth.

Hab. S.W. AUSTRALIA, Yallingup (*Turner*), December.

10. *Psammochares bassianus*, sp. n.

♀. Closely allied to *vassei*, but has three spines only on the basal joint of the fore tarsi, the sixth dorsal segment is quite distinct, the apical half of the segment being smooth, shining, and slightly concave in *bassianus*, the apex a little produced and not very broadly rounded, in *vassei* the segment is slightly convex throughout, the apical half subopaque and very closely and minutely punctured and very broadly rounded at the apex; in *melancholicus* the segment is more narrowly rounded at the apex than in either, convex throughout, the apical quarter shining and almost smooth.

Hab. TASMANIA, Eaglehawk Neck (*Turner*), February.

Unfortunately I did not take the male. The group of *melancholicus* seems to be very extensive and the species very closely allied, but differing especially in the apical segments of both sexes. I have two or three Eastern Australian forms, but have not sufficient material from which to describe them.

11. *Psammochares labilis*, Sm.

Pompilus labilis, Sm., Descr. new species Hymen., p. 151, 1879, ♂ (as ♀).

The thorax in this species is without pubescence in the female, but the pronotum of the male is covered with close-lying whitish hairs, the head also being covered with similar hairs in both sexes except on a transverse band across the ocellar region. The colour of the pubescence varies from whitish to dull yellowish. The female has three long spines on the basal joint of the fore tarsi.

Hab. QUEENSLAND, Townsville (*Dodd*), January and February; NORTHERN TERRITORY, Port Darwin (*G. F. Hill*); N.W. AUSTRALIA, Nicol Bay (*Dr. Clement*).

12. *Psammochares basilicus*, sp. n.

♀. Nigra, capite luteo pubescente, fascia transversa in regione ocellari nuda; segmento dorsali fascia angusta apicali subinterrupta, secundo tertioque macula transversa utrinque cinereo-pubescente; segmento mediano lateribus ante apicem distinctissime tuberculato.

Long. 19 mm.

♀. Very near *P. labilis*, but may be distinguished from that species by the absence of the very broad abdominal fasciae, by the presence of four long spines on the basal joint of the fore tarsi; the median segment has a very deep median sulcus and a blunt tubercle on each side before the apical angles, the tubercle being almost obsolete in *labilis*; in both the apical dorsal segment is broadly rounded at the apex, but the puncturation of the segment, though very minute in both, is more distinct in *labilis*. The second abscissa of the radius is scarcely twice as long as the third in *basilicus*, and in West Australian specimens of *labilis*, but about four times as long in Queensland specimens of *labilis*.

Hab. N. QUEENSLAND, Townsville (*Dodd*).

Nearly allied to this group but differing in having the submedian cell distinctly longer than the median in both sexes and the tarsal ungues in the male bifid are the two following species—

1. *Psammochares amoenulus*, Turn.

Anoplus amoenulus, Turn., Proc. Zool. Soc. London, p. 329, 1910, ♀.

Hab. QUEENSLAND, Brisbane and Mackay.

2. *Psammochares elatus*, Sm.

Pompilus elatus, Sm., Journ. Linn. Soc. Zool., viii, p. 82, 1864, ♀.

Hab. QUEENSLAND, Mackay and Townsville; MOLUCCAS, Morty Island.

Another generic group is easily distinguished by the coarse granulation of the thorax, especially strong on the median segment; by the very long submedian cell, which is much longer than the median; by the very short third

cubital cell, which is twice as long on the cubitus as on the radius, but no longer on the cubitus than the length of the third transverse cubital nervure; by the red colour of the thorax and median segment, and by the unidentate tarsal unguis. To this group belong—

1. *Psammochares erythrosethus*, Sm.

Pompilus erythrosethus, Sm., Cat. Hym. B. M., iii, p. 162, 1855, ♀.

The male of this wide-ranging species is unknown, but I have seen a male closely resembling this female, but with red legs, from Western Australia.

Hab. S.W. AUSTRALIA, Yallingup (*Turner*). November to January; TASMANIA, Eaglehawk Neck (*Turner*), February; QUEENSLAND, Mackay.

2. *Psammochares perpulcher*, sp. n.

♀. Rufo-ferruginea; capite nigro; scapo subtus, mandibulis clypeoque ferrugineis; tarsis infuscatis; alis hyalinis, tertio apicali fasciaque mediana fuscis.

Long. 7 mm.

♀. Second joint of the flagellum as long as the first and third combined; the clypeus and lower part of the front clothed with silver pubescence. Head finely and very closely punctured; posterior ocelli further from the eyes than from each other. Thorax closely and very distinctly punctured; pronotum very widely arched posteriorly; scutellum subquadrate. Median segment coarsely granulate, without a sulcus, with short, sparse, white pubescence. Abdomen shining, the punctures microscopic; sixth dorsal segment with a few large scattered punctures, broadly rounded at the apex. Fore tarsi with a short comb, the basal joint with four short spines. Cubitus of the hindwing originating just beyond the transverse median nervure.

Hab. QUEENSLAND, Townsville (*Dodd*), August.

Differs from *erythrosethus* in the smaller size, the sculpture of the thorax, the colour of the abdomen and legs, and the much shorter spines of the fore tarsi.

Agenioideus expulsus, sp. n.

♀. Nigra; pronoto margine postico late, tibiisque posticis macula basali albidis; calcaribus pallidis; alis hyalinis, anticis fusco bifasciatis, venis nigris.

♂. Feminae similis; tibiis intermediis etiam basi albido maculatis; segmento dorsali septimo albido; alis fascia basali subobsoleta.

Long. ♀, 7-8 mm.; ♂, 7 mm.

♀. Clypeus short and broadly truncate at the apex; antennae about as long as the thorax and median segment combined, the second joint of the flagellum as long as the first and third combined. Pronotum broadly arcuate posteriorly, not angulate; scutellum convex. Median segment slightly convex, oblique, the dorsal and posterior surfaces not separated, rather thinly covered with short white pubescence. Abdomen subopaque; the apical dorsal segment subtriangular, with a few rather long dark hairs. Tarsal ungues unidentate. Cubitus of the hindwing received at a distance beyond the transverse median nervure equal to the length of the transverse cubital nervure; submedian cell of the forewing very slightly longer than the median; third abscissa of the radius scarcely more than half as long as the second, the third cubital cell shorter on the cubitus than the second. The fascia on the basal nervure narrow, that from the radial cell broad, filling the second and third cubital cells.

♂. Tarsal ungues as in the female, but the tooth rather nearer to the apex.

Hab. QUEENSLAND, Mackay (*Turner*), November to March.

This seems to be undoubtedly congeneric with *A. humilis*, Cress., from N. America, the type of Ashmead's genus. The description of the genus, however, is far from accurate. The cubitus of the hindwing in all species of the genus known to me originates well beyond the transverse median nervure, though not so far as in the present species. The Indian *Pompilus maculipes*, Sm., also belongs to this genus.

Genus AUSTROSALIUS, gen. nov.

♀. Head small, flattened, rather longer than broad; clypeus very short, broadly truncate at the apex; the labrum exposed, emarginate at the apex. Pronotum long, sometimes longer than the mesonotum, sometimes a little shorter; median segment either vertically or obliquely truncate, opaque and smooth, with a median sulcus, the sides parallel, without tubercles; abdomen rather narrow, convex, the sides of the four basal segments almost parallel; the transverse line on the second ventral segment visible, but not deeply impressed. Fore femora very stout; fore tarsi without a

comb; hind tibiae with a few small spines, not serrate. Second abscissa of the radius at least as long as the third, the recurrent nervures received at the middle of the second and of the third cubital cells; submedian cell of the forewing very slightly longer than the median; cubitus of the hindwing either interstitial with or originating just beyond the transverse median nervure. Male unknown.

Type of the genus *Ferreolomorpha artemis*, Turn.

1. *Austrosalius artemis*, Turn.

Ferreolomorpha artemis, Turn., Proc. Zool. Soc. London, p. 325, 1910, ♀.

Hab. MACKAY, Q. (Turner), October to March.

2. *Austrosalius malignus*, Sm.

Salius malignus, Sm., Journ. Proc. Linn. Soc. Zool., iii, p. 157, 1858, ♀.

This is the only other species of the genus known to me. It is much larger than *artemis*, and the mesonotum is much longer, the colour of the antennae and of the wings is also different. It has not been recorded from Australia.

Hab. ARU (Wallace).

Nearly allied to this genus are the South Indian *Pseudagenia rava*, Bingham, and an allied species which seems to be undescribed; but in which the submedian cell is much longer, the head rather larger and the labrum not so strongly exposed. The tarsal ungues are bifid in these species, not unidentate as in *Austrosalius*. For this genus I propose the name

CRYPTOSALIUS, gen. nov.

Type of the genus *Pseudagenia rava*, Bingham.

1. *Cryptosalius rava*, Bingham.

Pseudagenia rava, Journ. Proc. Linn. Soc. Zool., xxv, p. 426, 1896, ♀.

Hab. BANGALORE (Bingham); COIMBATORE (T. V. Rama Krishna), February.

2. *Cryptosalius pandiyanus*, sp. n.

♀. Nigra, albopilosa; mandibulis ferrugineis, apice nigris; antennis tarsisque anticis fuscis; alis flavohyalinis, apice late infumatis, venis testaceis; vertice, pronoto postice, segmento mediano postice, segmentis dorsalibus 1-4 fascia lata apicali, segmentoque sexto, dense albopubescentibus; pronoto elongato, mesonoto duplo longiore.

Long. 6-8 mm.

♀. Head longer than the greatest breadth; clypeus short, the apical margin widely and very shallowly emarginate. Posterior ocelli about half as far again from the eyes as from each other; inner margins of the eyes parallel; the front with a distinct but very shallow longitudinal sulcus extending to the anterior ocellus. Front, pronotum and median segment, except broadly posteriorly, clothed with very short and sparse fulvous pubescence. Antennae short and stout, not more than twice as long as the head, second and third joints of the flagellum subequal. Pronotum at least twice as long as the mesonotum, narrower than the head, as long as the greatest breadth, very slightly narrowed anteriorly. Mesonotum very short; median segment shorter than the pronotum, obliquely sloped posteriorly, the sides parallel. Second ventral segment with a distinct transverse groove near the base. The whole ventral surface clothed with very delicate silver pubescence. Anterior tibiae produced at the apex without and ending in two spines; hind tibiae smooth. Second abscissa of the radius longer than the third; first recurrent nervure received close to the middle of the second cubital cell, second at about three-quarters from the base of the third cubital cell; submedian cell much longer than the median, cubitus of the hindwing interstitial with the transverse median nervure.

Hab. COIMBATORE, S. India (*T. V. Rama Krishna*), January to August.

This is a much smaller species than *C. rava*, and may be distinguished by the very much longer pronotum, which in *rava* is much broader than long and no longer than the mesonotum. The third cubital cell is shorter than in *rava* and receives the recurrent nervure nearer to the apex. There is some difference in the present species in the length of the third cubital cell, specimens taken in July and August having the third abscissa of the radius as long as or longer than the second. The type was taken in January. There is also some variation in the position

of the second recurrent nervure. But I regard these as individual variations only.

Cryptochilus commixtus, Turn.

Cryptocheilus commixtus, Turn., Proc. Zool. Soc. London, p. 317, 1910, ♀ ♂.

This species belongs to the group in which the male has the tarsal ungues bifid, while they are unidentate in the female. This structure is found in a considerable number of oriental and Malayan species, also in one or two Ethiopian species, but not as far as I know in any other Australian *Cryptochilus*. Superficially the species closely resembles *Hemipepsis australasiae*, but is not as plentiful and has a more limited range.

Hab. MACKAY and CAIRNS, Q.

The nearest ally is *C. basimacula*, Cam., from New Britain.

Genus **CYPHONONYX**, Dahlb.

Cyphononyx, Dahlb., Hymen. Europ., i, p. 461, 1843.

This genus was founded on the single character of the bifid tarsal ungues. But I am very doubtful if it will eventually stand, owing to the fact that a considerable number of species have males with the bifid tarsal ungues of *Cyphononyx* and females with the unidentate ungues of *Cryptocheilus*. At present I retain the name for those species in which the tarsal ungues are bifid in both sexes. Taken in this sense there is only one Australian species of the genus.

Cyphononyx aspasia, Sm.

Mygimimia aspasia, Sm., Journ. Proc. Linn. Soc. Zool., iii, p. 157, 1858, ♀.

A beautiful large species with yellow wings and the abdomen glossed with blue.

Hab. MACKAY and KURANDA, Q. (*Turner*); New Guinea; Arn (*Wallace*); Ké (*Stalker*).

Cyphononyx vitiensis, sp. n.

♀. Nigra; capite, antennis, pronoto, mesonoto lateribus, tegulis, scutello, postscutello apice, segmentis abdominalibus tertio apice, quarto, quinto sextoque, pedibusque fulvo-ferrugineis; alis flavo-

aurantiacis, anticis macula magna mediana fusco-purpurea, apice leviter infuscatis, venis ferrugineis.

♂. Feminae similis; mesonoto fusco-ferrugineo.

Long. ♀, 18-21 mm.; ♂, 18 mm.

♀. Clypeus broad and transverse at the apex; labrum scarcely exposed, very broadly rounded at the apex and with a fringe of long fulvous hairs. Antennal prominence somewhat porrect, very feebly bilobed and divided by a strong longitudinal sulcus. Second joint of the flagellum a little longer than the first and third combined. Posterior ocelli further from the eyes than from each other. Pronotum short, rounded at the anterior angles, the posterior margin very broadly arched. Head and pronotum sparsely, mesonotum and scutellum closely, covered with short dark golden pubescence, the mesonotum and scutellum very finely and closely punctured; scutellum with a flat dorsal surface, broadly rounded at the apex; postscutellum subcarinate longitudinally in the middle, slightly produced in the middle posteriorly and rounded at the apex. Median segment with a blunt tubercle on each side at the base, with a deep median sulcus from base to apex, opaque, with very minute and indistinct transverse striae; the posterior slope oblique, not abruptly separated from the dorsal surface, sparsely clothed with fuscous hairs. Abdomen highly polished, with a few small scattered punctures; sixth dorsal segment more coarsely punctured, narrowly rounded at the apex, densely clothed with golden pubescence intermingled with coarse fulvous setae. Hind tibiae rather feebly serrate; tarsal ungues bifid; spines of the fore tarsi rather short. First recurrent nervure received at about three-quarters from the base of the second cubital cell, second just before the middle of the third cubital cell; third abscissa of the radius nearly half as long again as the second; cubitus of the hindwing interstitial with the transverse median nervure; submedian cell of the forewing longer than the basal.

♂. Antennae very long, measuring 15 mm., the whole length of the insect being 18 mm.; groove near the base of the second ventral segment very distinct, quite as deep as in the female; seventh dorsal segment very broadly rounded at the apex; sixth ventral segment widely emarginate at the apex, with a short acute spine on each side at the apical angles; seventh ventral segment flat, subquadrate, broadly truncate at the apex.

Hab. FIJI (British Museum ex *Crawley Coll.*); Fiji (*R. C. L. Perkins*), Fiji, Natova, Nadi (*R. Veitch*), October.

Not very nearly related to any other species known to me, though nearer to the group of *C. flavus*, Fabr., than

to *C. aspasia*, Sm., and the related species *C. intrepida*, Sm., and *C. confector*, Sm.

Genus *HEMİPEPSIS*, Dahlb.

Hemipepsis, Dahlb., Hymen. Europ., i, p. 123, 1843.

I think this is a good genus and distinct from *Cryptochelilus*, Panz. After much consideration I disagree with Schulz, who uses Shuckard's name *Mygnimia* for the genus. This name was published in 1840, and therefore has priority over *Hemipepsis*. But no species are given in Shuckard's work, and the single character given, the position of the first recurrent nervure, would apply to other species not included in *Hemipepsis*, such as some species of *Cyphononyx*, equally well. Thus Shuckard's name should, in common with other names in the same work, be treated as a *nomen nudum*, and only date from Smith's publication of the name in 1855. There is only one Australian species of *Hemipepsis*.

Hemipepsis australasiae, Sm.

Mygnimia australasiae, Sm., Ann. and Mag. Nat. Hist. (4). xii, p. 259, 1873.

This seems to me to be the Australian form of the Indo-Malayan *H. aureosericeus*, Guér. It has a wide range in Australia, especially in the northern half of the continent.

Hab. Cooktown, Cairns and Mackay, Q.; Hermannsburg, Central Australia; Fowler's Bay, S.A.

Family CRABRONIDAE.

Subfamily AMPULICINAE.

Ampulex crawshayi, sp. n.

♀. Viridi-cyanea; antennis tarsisque nigris; mandibulis ferrugineis; alis hyalinis, venis nigris, anticis in cellulis radialis, eubitali secundo discoidalique secundo leviter infuscatis; abdomine segmentis apicalibus fortiter compressis.

Long. 20 mm.

♀. Carina of the clypeus sharply bent downwards near the apex, produced into a short blunt apical tooth. Second joint of the flagellum about equal to the combined length of the third and

fourth; eyes separated on the vertex by a distance slightly less than the length of the second joint of the flagellum. Head strongly rugosely punctured, less coarsely on the vertex than on the front, the median frontal carina not nearly reaching the anterior ocellus, the lateral carinae curved, not straight, and meeting above the anterior ocellus. Pronotum rather long, narrowed anteriorly, sparsely punctured, produced posteriorly into a low tubercle, with a median sulcus reaching to the base of the tubercle, the anterior half of the sulcus with a few short transverse striae. Mesonotum and scutellum smooth, with a few scattered punctures. Median segment broader in the middle than long, the third carina in the middle as far from the fourth as from the second; the tubercles at the apical angles elongate triangular, not curved. Second dorsal segment at least one-quarter longer than the breadth in the middle, the sides not strongly convex; the three apical segments very strongly compressed laterally. Hind tibiae very sparsely punctured; fifth joint of the tarsi inserted at the base of the fourth, the latter not reaching the middle of the fifth joint. Length of the radius beyond the third cubital nervure less than half of the length of the second transverse cubital nervure. Three cubital cells.

Hab. NYASALAND, Kondowi, Lower Nyika (*R. Crawshay*), June.

In the compression of the apical segments of the abdomen this species resembles *A. sibirica*, Fabr. (*compressiventris*, Guér.); but in neuration is close to *assimilis*, Kohl., which, however, differs much in sculpture and other points.

Ampulex kristenseni, sp. n.

♀. Viridi-cyanea; clypeo antennisque nigris; tarsis fuscis; mandibulis, tibiis anticis, femoribusque ferrugineis; alis hyalinis, venis nigris, cellula radiali leviter infuscata.

Long. 16 mm.

♀. Clypeus strongly convex, porrect, the carina not produced into a tooth at the apex. Second joint of the flagellum as long as the third and fourth combined; eyes separated on the vertex by a distance scarcely exceeding the length of the second joint of the flagellum. Head rugosely punctured, the median frontal carina very short, not nearly reaching the anterior ocellus, the lateral frontal carinae well developed. Pronotum shining, feebly and irregularly transversely striated, with a median sulcus on the anterior portion, raised into a tubercle at the apex. Mesonotum

in the middle and scutellum with a few scattered punctures, the sides of the mesonotum more closely punctured. Median segment as in *conigera*, Kohl., but with the tubercles at the apical angles much smaller and less curved. Second dorsal segment much broader than long, shorter than in *conigera*; second ventral segment convex at the base as in *conigera*. Fifth joint of the tarsi inserted close to the base of the fourth joint. Three cubital cells, the length of the radius beyond the junction of the third transverse cubital nervure equal to the length of the second transverse cubital nervure.

Hab. ABYSSINIA, Harar (*Kristensen*).

Very nearly allied to *conigera*, Kohl., but differs, as pointed out in the description, also in the much greater length of the radius beyond the third cubital cell, and in the narrower apical portion of the clypeus and shorter frontal carina.

Subfamily *STIZINAE*.

Stizus pacificus, sp. n.

♀. Nigra; labro, clypeo macula magna utrinque, orbitis interioribus, scapo subtus, flagello subtus, callis humeralibus, mesonoto angulis posticis, scutello macula utrinque, postscutello fascia angusta interrupta, segmento mediano angulis posticis, segmentis dorsalibus 1-4 macula transversa apicali utrinque, 2-5 striga transversa apicali in medio, tibiis anticis, intermediis subtus, tarsisque anticis subtus flavis; tibiis posticis tarsisque ferrugineis; mandibulis fusco-ferrugineis; alis hyalinis, leviter infuscatis, venis fusco-ferrugineis; segmento mediano angulis lateralibus fortiter excisis.

Long. 10 mm.

♀. Eyes separated at the base of the clypeus by a distance half as great again as the length of the scape. Head and thorax subopaque, very closely and minutely punctured and covered with very short fuscous pubescence, which is closer on the mesonotum than on the head; median segment much more strongly punctured, thinly covered with short whitish pubescence; abdomen rather less strongly punctured than the median segment, with faint blue tints in certain lights, sixth dorsal segment very closely punctured. Second cubital cell not petiolate, the first abscissa of the radius at least three times as long as the second.

Hab. FIJI, Natova, Nadi (*R. Veitch*), October.

This belongs to the group of *S. tridens*, Fabr., but

differs in the colouring, especially of the legs, from the allied species. The infuscation of the wings is caused by numerous small hairs.

Subfamily *CRABRONINAE*.

Entomognathus rugosissimus, sp. n.

♀. Nigra; abdomine pedibusque ferrugineis; coxis anticis, trochanteribus anticis, femoribusque anticis subtus nigris; tegulis testaceis; alis fuscis, venis nigris; clypeo argenteo-pubescente.

Long. 8 mm.

♀. Mandibles deeply excised on the outer margin, simple at the apex. Clypeus raised into a porrect tubercle just above the middle of the apical margin, with a very short blunt tooth on each side near the apical angles. Eyes hairy, the facets in front rather larger than elsewhere. Head large, but not broader than the thorax; front broad, the eyes separated at the base of the clypeus by a distance equal to the length of the scape; antennae short and stout, the third joint of the flagellum as long as the second; ocellar region and vertex very coarsely punctured; ocelli in a very broad triangle, the posterior pair far apart, but nearly as far from the eyes as from each other, an irregular oblique groove from each posterior ocellus reaching almost to the eye. Pronotum transverse, rounded at the angles, punctured; mesonotum coarsely punctured-rugose; scutellum with sparse large punctures; mesopleurae coarsely, but rather sparsely, punctured, with a smooth groove in front for the reception of the anterior femora. Median segment very short, the dorsal surface only half as long as the scutellum; the basal area very broadly rounded at the apex, with several strong longitudinal carinae; the posterior slope abrupt, almost smooth, with a broad shallow median groove narrowing towards the apex. Abdomen sessile, the basal segment the broadest, the two basal dorsal segments with sparse, but rather large, punctures; the remaining segments with small scattered punctures; sixth dorsal segment rather narrowly triangular, clothed with golden pubescence. Hind tibiae hairy, almost unarmed, with feeble serrations near the apex; fore tarsi unarmed. Recurrent nervure received at three-quarters from the base of the cubital cell; radial cell broadly truncate at the apex, the transverse cubital nervure received at the middle of the radial cell.

Hab. NYASALAND, Mlange (*S. A. Neave*), January.

This is very distinct in colour and sculpture from other species of the genus, but does not differ much in structural characters.

Crabro veitchi, sp. n.

♀. Nigra; flagello, pronoto, callis humeralibus, scutello angulis anticis, postscutelloque fascia transversa flavis; mandibulis apice excepto, tegulis, segmentis dorsalibus secundo dimidio basali, sextoque, ventralibus primo, secundo dimidio basali, quinto, sextoque, pedibusque ferrugineis; alis hyalinis, leviter infuscatis, venis fuscis.

Long. 11 mm.

♀. Mandibles tridentate at the apex; clypeus porrect, triangularly emarginate at the apex, not carinate, clothed with silver pubescence. Eyes with very large facets in front, separated at the base of the clypeus by a distance equal to the length of the second joint of the flagellum, a groove along the inner margin of the eyes near the summit. Second joint of the flagellum nearly as long as the first and third combined. Head large and massive, broader than the thorax, minutely and closely punctured, the temples very broad and clothed with silver pubescence; ocelli in a wide triangle, the posterior pair as far from each other as from the eyes, fully half as far again from the posterior margin of the head as from each other. Pronotum transverse, rounded at the anterior angles; mesonotum very finely punctured-rugulose on the anterior half, more sparsely punctured posteriorly, a broad depression from the anterior margin to the middle. Scutellum and postscutellum shining, with scattered punctures; propleurae vertically striated; mesopleurae sparsely and rather coarsely punctured, without a groove for the intermediate or hind femora. Median segment closely and rather strongly punctured, the triangular basal area defined by grooves and with a median longitudinal groove, the sides of the segment closely and rather strongly obliquely striated. Abdomen petiolate, smooth and shining, the first segment longer than the second and third combined, slender, the apical half moderately swollen, not constricted at the apex; second segment nearly as broad at the apex as the third, the second ventral segment with a small, oblong, pubescent, opaque mark on each side near the base; fifth dorsal segment minutely punctured; pygidial area very narrow, lanceolate. Recurrent nervure received just beyond three-quarters from the apex of the cubital cell; transverse cubital nervure received close to the middle of the radial cell. Hind tibiae serrate.

Hab. FIJI, Natova (*R. Veitch*), April.

The petiolate abdomen gives this insect somewhat the appearance of a *Dasyproctus*, but it does not belong to that genus, but does not seem to be closely allied to any described *Crabro*.